

## **NURP Instrumental in NASA, NMS, and NURP Collaboration to Research the FGBNMS**

The Flower Garden Banks National Marine Sanctuary (FGBNMS), designated in 1992, is a part of NOAA's National Marine Sanctuaries (NMS) Program. It consists of three reef banks in the Northwest Gulf of Mexico which display a diverse array of marine life, including 285 species of fish and 32 species of coral. The Sanctuary's corals now form the basis for a complex, yet balanced ecosystem, providing a regional oasis for shallow-water Caribbean reef species.

The reefs are of sufficient distance from the coast to have been protected from anthropogenic influences such as elevated nutrient and sediment levels.

*Thorough documentation of the structure and function of reef species in this relatively pristine region can provide potential baseline data to address management issues in the future.*

The National Underwater Research Program (NURP) played an instrumental role in bringing the National Aeronautics and Space Administration and NMS Program together for a research cruise to identify and document species indigenous to the FGBNMS. The M/V *Liberty Star*, a NASA vessel operated by the United Space Alliance to recover rocket boosters following shuttle launches, was made available to NURP's Undersea Research Center for the South Atlantic and Gulf of Mexico, who in turn passed on the ship time to the FGBNMS. NURP also donated use of a *Phantom S2* remotely operated vehicle (ROV) equipped to retrieve samples and capture high resolution digital photographs and video to a depth of 948 feet.

The research objectives, to photograph, collect, and identify the species and habitat of targeted sponges, were accomplished by selecting survey sites based on historic habitat maps and current georeferencing and bathymetry, obtaining photographs and samples with the ROV, and preserving the organisms for identification by taxonomists. The sponge survey is part of an ongoing project to determine the taxonomy and habitat of organisms throughout the Flower Garden Banks. To date, surveys of black corals, gorgonians, anthiids, grouper, snapper, and algae have been completed. Results, to be published, will provide researchers with the first comprehensive catalog of FGBNMS species.

In addition to gathering data for species documentation, the research team executed sixty-four SCUBA dives at various reef banks in and around the FGBNMS. The team successfully removed forty-six colonies of the orange cup coral (*Tubastraea coccinea*), an invasive species, from the reef cap of a bank east of the FGBNMS. The coral originated in the Pacific Ocean and could possibly pose a threat because of its ability to out compete native species. One colony of this coral has been documented at the Flower Garden Banks. It was the first time that removal of this coral had been attempted in the region.